

REMARKS

In the Office Action dated August 25, 2005, the Examiner rejected claims 1-3, 5-12, 14-20, and 22-24 under 35 USC 102(b) as anticipated by Sugama in US Patent Publication 2002/0118907 and rejected claims 4, 13 and 21 as obvious over Sugama and Nakaura in US Patent 5,604,835. In response thereto, the Applicant has amended claims 1, 2, 12, 15, 16. Claims 1-25 remain at issue.

THE ART REJECTION

Certain claims have been amended to include a plurality of optical lenses positioned in the optical path of the ends of the plurality of the core channels respectively. Each of the plurality of optical lenses are spaced from the ends of the core channels so that ambient air is provided between the ends of the core channels and the plurality of optical lenses. In contrast with Sugama, the lenses are above and in the optical path of the waveguides. See for example Figure 10 where the lens 6 is at a right angle (i.e., 90 degrees) with respect to the waveguide 3. A 45 degree mirror 5 is disposed in the optical path of the waveguide to direct light between the waveguide 3 the lens 6. See paragraph [0158]. Since Sugama fails to teach or suggest the use of lenses in the optical path of the ends of the core channels, the claims with these features are allowable.

Certain other claims have been amended to include a waveguide having one or more core channels with at least one curved section formed on a bottom cladding layer. A top cladding layer is provided over the one or more channels and includes a curved opening over the curved section of the one or more channels. The curved opening provides an ambient air cladding over the curved section of the one or more core channels. A review of the Sugama reference indicates that the above claimed features are not taught or suggested by the reference.

According to the Examiner, Figure 14 of Sugama is the most relevant. In paragraph [0173] Sugama states that a description of Figure 14 is omitted because it is the same as Figure 13. A detailed discussion of Figure 13 is therefore provided below.

With reference to Figure 13 in paragraph [0170], Sugama describes an optical wiring multi-layer substrate with input optical wires 12 formed in a lower layer and output optical wires formed in an upper layer. In Paragraph [0171], Sugama further teaches that the input wiring 12 and the output wiring 13 are “*linear*” and are “*orthogonal to each other on different layers*”. In

paragraph [0174], Sugama teaches that an interlayer optical via hole 16 is provided between the input wiring 12 and the output wiring 13 to optically couple the two together. The interlayer optical via hole 16 is illustrated in Figures 15 and 16A-16H of Sugama. Figure 15 is described by Sugama in paragraphs [0175] through [0177]. Similarly, the third embodiment of Sugama described in paragraphs [0201] through [0233] in relation to figures 23-31 also fail to teach these claimed features.

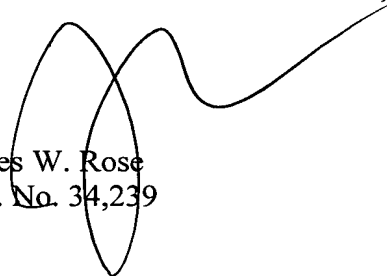
Sugama therefore fails to teach a waveguide having (i) one or more core channels with a curved section. On the contrary, Sugama explicitly teaches that the optical wires 12 and 13 are *linear*; and (ii) a curved opening formed in the top cladding layer. Again in contrast, Sugama teaches an *optical via* used for optically coupling two linear optical wires on different layers, not a curved opening used for creating an ambient air cladding layer over the curved section of the core channels.

Sugama therefore fails to teach or suggest the present invention as claimed in the present application.

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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